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AUTHOR Clemson, Eleanor
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ABSTRACT

The Basic Skills Assessment (BSA) is a national secondary level testing program which provides secure tests in reading, writing, and mathematics. It is designed to identify students who need additional instruction in the basic skills so they may be helped to reach the school district's secondary school graduation requirements. One of the BSA's objective instruments--A Writer's Skills--and the Writing Sample designed to accompany it are discussed. Both were administered to junior high school students, and the data analyzed. Results indicate that students who score well on the BSA test of A Writer's Skills also score well on The Writing Sample. This lends support to the validity of the objective measure as an indication of students' writing abilities, The objective test has a strong positive relationship with holistically scored samples. (Author/GK)

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ED204409

A STUDY OF THE BASIC SKILLS ASSESSMENT DIRECT AND INDIRECT MEASURES OF WRITING ABILITY

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TM 810 471

Eleanor Clemson
Educational Testing Service
April, 1978

Background of the Basic Skills Assessment

The Basic Skills Assessment (BSA) is a national secondary level testing program which provides secure tests in reading, writing and mathematics. It is designed to identify students who need additional instruction in the basic skills so that they may be helped to reach the minimal level that a local school district feels is essential for satisfactory completion of secondary school graduation requirements. The BSA was developed by Educational Testing Service (ETS) in collaboration with a national Consortium of school districts. The tests are designed for use with students in grades 8 through 12 but also may be appropriate for younger students and adults. The BSA emphasize everyday applications of practical and academic skills. Test content was based in part on a national test specification survey that was responded to by 800 school districts. Specialists in the areas of mathematics and language (reading and writing) from across the nation served on test development committees. Their decisions regarding the physical, statistical, content and skill specifications for the tests are based on the results of the national survey. Item writing, test assembly and two stages of pretesting were done by ETS staff. Normative data for the tests are based on a nationwide sample of students at both the entry (grades 8 and 9) and exit (grade 12) levels of secondary school.

Basic Skills Assessment Writing Program

This paper will focus on one of the Basic Skills Assessment objective instruments--A Writer's Skills--and the Writing Sample designed to accompany it. In addition to arriving at the specifications for A Writer's Skills shown in Table 1, the BSA Language Test Development Committee recommended that an assessment of writing should include actual samples of students' writing.

ETS staff members surveyed a sample of English teachers from the nationwide Consortium of over 300 school districts to determine which writing skills they felt should be tested with a writing sample. As a result, 15 exercises were developed and tried out with a sample of high school students in Harrisburg, Pennsylvania. These papers were discussed and analyzed by a group of English teachers and ETS staff. From this analysis, the teachers selected what they considered to be the four most effective exercises and the average time needed to complete each one. As in the 45 minute objective test, the timing is merely suggested since the BSA consists of exercised based on the following specifications:

I. Completing a Form (5 minutes)
II. Writing a Business Letter (20 minutes)
III. Conveying Information Accurately (10 minutes)
IV. Writing Creatively (20 minutes)

Any combination of exercises may be administered although it was agreed that a balanced sample of writing will result if Exercises I, III, and either II or IV are administered.

Both analytic and holistic methods of scoring are outlined in the Manual for Scoring the Writing Sample. In analytic scoring, various components of writing are examined individually and criteria must be established for judging each. In Holistic scoring, papers are read for a total impression and rated on a four-point scale based on a consensus of what each scale point represents. Schools may choose to have ETS score the papers or to have an ETS consultant run a holistic scoring session or workshop for district teachers.

Introduction

It is believed that combining students' scores on a multiple-choice test of writing ability with scores on free-response writing exercises provides the greatest possible insurance that the final scores were both reliable and valid. Studies show that multiple choice tests of writing ability can have high validity and that a writing sample can increase the validity of the total writing examination.

The College Entrance Examination Board's Test of Standard Written English (TSWE) is a 50 multiple-choice item test of the ability to use the conventions of "standard written English" (the conventional language used in most college textbooks) developed in 1974 for use in placing college freshmen into English composition courses. Correlational analyses by Breland, Conlon, & Rogosa (1976) show the TSWE to be associated with SAT-Verbal scores, high school class rank, and performance on short essay examinations. "The correlation with essay examination performance, in particular, lends a degree of construct validity to TSWE (p. 70)."

An in-depth study was done on 96 students who had taken TSWE in September, 1974 and a 20-minute essay examination in April, 1975. Two different methods were used in scoring the essays. The first method concentrated on grammar, usage, and sentence sense (GUSS)--the same areas of focus as TSWE. The second method considered GUSS criteria as well as the overall impression given by the essay, termed the Holistic method. Two readers read each essay and scored it on a scale of one to four and the sum of the two scores was regarded as the student's score. In cases where the first two readers differed in scoring by more than one point, the paper was independently read a third time and the discrepancy resolved by consensus.

The results of these essay scorings revealed, as might be expected, the highest correlation occurred between GUSS and TSWE scores and that it was more difficult to obtain a high Holistic essay score than a high GUSS score. In general, the scores tended to fall into categories where TSWE, GUSS and Holistic measures agreed. In fact, only one of the 96 students with a high TSWE score had low GUSS and Holistic scores.

In a later study, Breland (1977) found the 30-minute multiple choice test of writing ability (TSWE) predicted actual writing performance better

than a 20-minute essay during both the fall (r = .69 vs. r = .60) and spring (r = .64 vs. r = .58) of the freshman year. Although student performances on the indirect measure (TSWE) had substantial correlations (.56 to .63) with performances on direct measures of writing ability (20-minute essays), no substantial improvement in prediction was obtained by adding the brief essay to the predictor set.

Using elaborate essay measures and scoring procedures to account for some of the unreliability inherent in the direct measure, Godshalk, Swineford, & Coffman (1966) obtained correlations between direct and indirect measures in excess of .70. Breland (1977), as Godshalk, Swineford, & Coffman (1966), found an increase in prediction possible when the reliability of the essay criterion is increased by summing six independent scorings of three essay topics over three occassions.

As Coffman (1971) and Nunnally (1976) explain, some measurement error arises because the questions in an exam are only a sample from the infinite domain of questions that might be asked. Therefore, the reliability of scores obtained on a sample of items from a domain increases with the number of items (or essays topics) sampled.

In addition, some error is due to the subjectivity of scoring essay exams. Therefore, as Godshalk, Swineford, & Coffman (1966) recommended, if the experimental design does not permit one to estimate the variance among readers, differences in standards between readers can be minimized by using multiple readings.

Although research suggested that multiple-choice tests of writing skills are valid indices of writing ability, it may very well be that students who perform adequately on the BSA test of A Writer's Skills cannot produce an acceptable piece of writing for The Writing Sample. Coffman (1966) suggests using essay examinations as "criterion measures against which the more efficient objective tests might be validated (p. 151)." The essay test provides a reference assessment; the objective test is a predictor. The correlation between the two provides an estimate of the validity of the predictor.

Method

Both the objective measure, A Writer's Skills, and the following BSA Writing Sample Exercises were administered during January 1978 to students in the North and South Junior High Schools of Great Neck, New York:

Exercise I: Fill out an application form
Exercise II: Write a business letter applying for a work training program
Exercise III: Write an essay explaining why you especially remember someone from elementary school

Complete data from 567 cases were analyzed. Although the entire population of over 600 eighth-grade students were included in the sample,

it was necessary to omit students with incomplete scores from the data analysis. The objective tests were machine-scored at ETS. The procedures and rubrics to be used in scoring writing samples were determined at a meeting of two coordinators of English from Great Neck and two ETSers:

> Exercise I and the Business Letter Format of Exercise II were scored at ETS by specially trained aides. Students received either a YES (1) or NO (0) score, depending on whether their completion of the Application Form was acceptable according to the scoring rubrics established by Great Neck. Students received scores ranging from 4 (best) to 1 on the Business Letter Format, also based on the rubrics established by Great Neck.
>
> Exercises II and III were scored holistically in a group session involving ten English teachers from New Jersey and Pennsylvania junior and senior high schools. All readers were experienced evaluators of student writing. Each paper was read twice and assigned a score of 4 (best) 3, 2 or 1. The two scores were added together for a final score on a scale of 8 (best) to 2. Fewer than 3% of the papers received discrepant scores (scores varying by more than one point) so inter-reader agreement was high.

Results

An analysis of the five subscores of the objective test and the four writing sample scores revealed the summary statistics in Table 2. A comparison of the Great Neck mean scores on the objective test with the national spring norms for eighth grade students showed Great Neck to be higher in all four subscore areas that had been analyzed in norming. The mean total objective score placed Great Neck students above 60% of the national sample.

Table 3 is a correlation matrix including each of the five objective test subscores and each of the four writing sample scores. Inter-subscore correlations for Great Neck differed between .03 and .11 points from those derived for the national sample. All inter-subscore correlations were significantly different from zero ($p < .001$) and ranged from $r = .40$ (Forms x Usage) to .65 (Logic/Evaluation x Usage). It is recognized that different objective test subscore reliabilities (particularly since subscores varied from 4 - 26 numbers of items) might have spuriously affected some of the correlations. The 8th grade norming administration of the parallel form, ZBX4, revealed the following subscore reliability differences:

Spelling = .74 (N = 14 items)
Capitalization & Punctuation = .77 (N = 14 items)
Usage = .83 (N = 17 items)
Logic/Evaluation = .89 (N = 26 items)
Total Score = .94 (N = 75 items)

Significant correlations were also obtained for each of the four writing sample scores with each of the other three scores. The lowest correlation was .13 (Application Form x Business Letter Format) and the highest was .55 (Business Letter Content x Creative Essay).

Table 4 reveals significant correlations existing between the total score of the objective test and each of the writing sample measures. The lowest correlation was the objective test with the Application Form ($r = .28$); next the objective with Business Letter Format ($r = .33$); and the highest was the objective with Business Letter Content ($r = .62$) and Creative Essay ($r = .62$). The combination of these last two measures in Table 5 yielded an increased correlation with the objective test ($r = .70$).

A split-half reliability estimate (corrected by the Spearman-Brown Formula) was established from the correlation between the Holistically scored writing samples. In that these two measures were not truly parallel, the reliability coefficient ($r = .713$) is probably an underestimate of the writing sample's true reliability. The correlation between the objective test and the two Holistic measures combined became even higher when corrected for attenuation ($r = .86$).

Table 6 shows that an even higher correlation with the objective test can be obtained by combining all four writing sample scores ($r = .72$).

A stepwise multiple regression shown in Table 7 treated each of the five objective subscores as independent variables in the prediction of the total writing sample score (the four samples combined). The best single prediction of students' writing sample scores was their scores in the Logic/Evaluation subscore section of the objective test.

The stepwise multiple regression shown in Table 8 again treated each of the five objective subscores as independent variables; but this time in the prediction of scores in the two Holistically scored samples combined only. Once again, the best single prediction of students' writing sample scores was their scores in Logic/Evaluation subscore area. This is not particularly surprising in that this section has the largest number of items and the highest reliability estimate.

A stepwise multiple regression shown in Table 9 treated each writing sample as an independent variable in the prediction of total objective scores. As might be expected, the best single predictor of objective scores was the Creative Essay sample; second, the Business Letter Content sample; and last, the two non-Holistically scored measures.

Conclusions

The results of this study indicate that students who score well on the BSA test of A Writer's Skills also score well on The Writing Sample. This fact, along with the positive subscore correlations within the objective test lend support to the validity of the objective measure as an indication of students' writing abilities. The objective test has a particularly strong positive relationship with Holistically scored samples. As noted in previous research, this correlation can be increased by combining two or more samples of students' writing.

The Executive Committee of the Conference on College Composition and Communication discussed different aspects of objective tests during its November 1977 meeting in New York. One of the questions they posed was "To what extent are there correlations between objective test scores and scores on writing samples; if these correlations are consistently high, can this be accepted as a defense for not including actual writing in tests of writing? (p. 7)."

Although correlations between the two methods of measurement are high, usage of the Writing Sample in the BSA program is encouraged because "it emphasizes the importance of actual writing both to students and to their teachers (BSA Manual for Scoring the Writing Sample, p. 15)."

Discussion

According to Coffman (1966) and Nunnally (1967), given a perfectly reliable criterion measure, it would be possible to obtain a correlation between a predictor and the criterion larger than that between the predictor and a parallel test. However, since perfectly reliable criterion measures exist only in theory, the validity of a test rarely exceeds its reliability. Nevertheless, it would be interesting to compute true parallel form reliability coefficients for the writing samples in order to estimate the extent to which the obtained correlations between variables are attenuated by measurement error.

The validity of the objective test for predicting subsequent essay performance could be examined by obtaining writing samples on different topics at the end of the school year. Finally, writing test scores could be compared with other criteria of writing ability, such as teachers' judgments (Manual for Setting Standards on the BSA, 1977) and grades in English courses.

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TABLE 1

BASIC SKILLS ASSESSMENT PROGRAM

A WRITER'S SKILLS - ZBX5

	SCORE NAME	ITEM NUMBERS	MAXIMUM SCORE
	section or part		
	TOTAL	1-75	75
*	1. Spelling	1-14	14
*	2. Capitalization & Punctuation	15-28	14
	3. Capitalization	15,20,23-24	4
	4. Commas	17-18,21,26 27-28	6
*	5. [illegible]age	33-49	17
*	6. Correctly Filled Out Forms	29-32	4
	7. Verb Problems	33,35,38,40 45,49	6
	8. Syntax (unidiomatic phrasing and structure)	34,36,41,43-44 46-47,72,74	9
*	9. Logic/Evaluation	50-75	26
	10. Logical Connectives	50-54,63,65	7
	11. Tone/Diction	56,58-59,64 66-67,69,73	8
	12. Relevancy	55,57,61-62,71	5
	13. Logical Organization	60,68,70,75	4

NOTE: * Indicates a Subscore

STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

TABLE 2
SUMMARY STATISTICS

	VARIABLE	CASES	MEAN	8th GR. MEAN NAT'L. SAMPLE	STD DEV
OBJECTIVE TEST SUBSCORES	SPELLING	567	11.4780	10.53	2.3105
	PUNCTUATION	567	10.8342	9.73	2.6718
	USAGE	567	14.4568	12.22	2.3466
	FORMS	567	3.1746	*	0.9302
	LOGIC/EVALUATION	567	19.7196	16.79	4.9153
	APPLICATION FORM	567	0.8236		0.3815
WRITING SAMPLE SCORES	BUSFORMAT	567	3.1481		0.9243
	BUSCONTENT	567	5.1446		1.5570
	ESSAY	567	5.1093		1.5485
	TOTAL OBJECTIVE	567	59.6631		10.8415
	ESSTOT = HOLISTIC SAMPLES	567	10.2540		2.7375
	ESSFOUR = TOTAL WRITING SAMPLE	567	14.2257		3.2513

* Not treated separately in nat'l. norming.

TABLE 3

CORRELATION MATRIX

PEARSON CORRELATION COEFFICIENTS

	OBJECTIVE SUBSCORES					WRITING SAMPLE			
	SP	PUNC	USAGE	FORMS	LO	APP	BUSF	BUSC	ESSAY
SPELLING	1.0000 (0) S=0.001	.611* 0.5672 (567) S=0.001	.603* 0.5609 (567) S=0.001	0.4248 (567) S=0.001	.615* 0.5747 (567) S=0.001	0.1960 (567) S=0.001	0.2729 (567) S=0.001	0.5382 (567) S=0.001	0.5463 (567) S=0.001
PUNCTUATION	0.5672 (567) S=0.001	1.0000 (0) S=0.001	.640* 0.5343 (567) S=0.001	0.4503 (567) S=0.001	.615* 0.6210 (567) S=0.001	0.2018 (567) S=0.001	0.3226 (567) S=0.001	0.5158 (567) S=0.001	0.5164 (567) S=0.001
USAGE	0.5609 (567) S=0.001	0.5343 (567) S=0.001	1.0000 (0) S=0.001	0.4029 (567) S=0.001	.715* 0.6592 (567) S=0.001	0.2086 (567) S=0.001	0.2302 (567) S=0.001	0.4611 (567) S=0.001	0.4671 (567) S=0.001
FORMS	0.4248 (567) S=0.001	0.4503 (567) S=0.001	0.4029 (567) S=0.001	1.0000 (0) S=0.001	0.4760 (567) S=0.001	0.2064 (567) S=0.001	0.2617 (567) S=0.001	0.3534 (567) S=0.001	0.3572 (567) S=0.001
LOGIC/EVAL.	0.5747 (567) S=0.001	0.6210 (567) S=0.001	0.6592 (567) S=0.001	0.4760 (567) S=0.001	1.0000 (0) S=0.001	0.2789 (567) S=0.001	0.2752 (567) S=0.001	0.5430 (567) S=0.001	0.5442 (567) S=0.001
APPLICATION FORM	0.1960 (567) S=0.001	0.2018 (567) S=0.001	0.2086 (567) S=0.001	0.2064 (567) S=0.001	0.2789 (567) S=0.001	1.0000 (0) S=0.001	0.1394 (567) S=0.001	0.1680 (567) S=0.001	0.1882 (567) S=0.001
BUSFORMAT	0.2729 (567) S=0.001	0.3226 (567) S=0.001	0.2302 (567) S=0.001	0.2617 (567) S=0.001	0.2752 (567) S=0.001	0.1394 (567) S=0.001	1.0000 (0) S=0.001	0.2846 (567) S=0.001	0.2578 (567) S=0.001
BUSCONTENT	0.5382 (567) S=0.001	0.5158 (567) S=0.001	0.4611 (567) S=0.001	0.3534 (567) S=0.001	0.5430 (567) S=0.001	0.1680 (567) S=0.001	0.2846 (567) S=0.001	1.0000 (0) S=0.001	0.5540 (567) S=0.001
ESSAY	0.5463 (567) S=0.001	0.5164 (567) S=0.001	0.4671 (567) S=0.001	0.3572 (567) S=0.001	0.5442 (567) S=0.001	0.1882 (567) S=0.001	0.2578 (567) S=0.001	0.5540 (567) S=0.001	1.0000 (0) S=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

* INTERCORRELATION AMONG SUBSCORES BASED ON A NATIONAL 8TH GRADE SAMPLE

TABLE 4

CORRELATIONS BETWEEN TOTAL OBJECTIVE TEST SCORE AND EACH WRITING SAMPLE MEASURE

PEARSON CORRELATION COEFFICIENTS

	TOT	APP	BUSF	BUSC	ESSAY	ESSTOT
TOTAL OBJECTIVE	1.0000 (0) S=0.001	0.2808 (567) S=0.001	0.3347 (567) S=0.001	0.6181 (567) S=0.001	0.6222 (567) S=0.001	0.7035 (567) S=0.001
APPLICATION FORM	0.2808 (567) S=0.001	1.0000 (0) S=0.001	0.1394 (567) S=0.001	0.1680 (567) S=0.001	0.1882 (567) S=0.001	0.2020 (567) S=0.001
BUSFORMAT	0.3347 (567) S=0.001	0.1394 (567) S=0.001	1.0000 (0) S=0.001	0.2846 (567) S=0.001	0.2578 (567) S=0.001	0.3077 (567) S=0.001
BUSCONTENT	0.6181 (567) S=0.001	0.1680 (567) S=0.001	0.2846 (567) S=0.001	1.0000 (0) S=0.001	0.5540 (567) S=0.001	0.8822 (567) S=0.001
ESSAY	0.6222 (567) S=0.001	0.1882 (567) S=0.001	0.2578 (567) S=0.001	0.5540 (567) S=0.001	1.0000 (0) S=0.001	0.8808 (567) S=0.001
ESSTOT= HOLISTIC SCORES	0.7035 (567) S=0.001	0.2020 (567) S=0.001	0.3077 (567) S=0.001	0.8822 (567) S=0.001	0.8808 (567) S=0.001	1.0000 (0) S=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

TABLE 5

PREDICTION FROM THE TOTAL OBJECTIVE TEST TO THE TWO HOLISTIC SAMPLES COMBINED

* MULTIPLE REGRESSION * * * * * * * * * * VARIABLE LIST 1
REGRESSION LIST 4

DEPENDENT VARIABLE.. ESSTOT = HOLISTIC SAMPLES COMBINED

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
TOTAL OBJECTIVE	0.70351	0.49493	0.49493	0.70351	0.1776357	0.70351
(CONSTANT)					-0.3443336	

NOTE: Set bottom limit to reliability of the two holistic measures by correlating the Bus. Content with the Creative Essay: r=.554. This was considered to be a substitution for a split-half reliability estimate for the writing sample. It is a bottom limit estimate of the reliability because the two holistic measures are not really parallel.

The obtained reliability was corrected by the Spearman-Brown Prophecy Formula:

$$k = \frac{(\text{desired rel.}) \times (1 - \text{obtained rel.})}{(\text{obtained rel.}) \times (1 - \text{desired rel.})}$$

$$2 = \frac{X(1 - .554)}{.554(1 - X)}$$

$$.713 = X$$

A correction for attenuation was applied: x=TOTAL OBJECTIVE
y=Two HOLISTIC SAMPLES COMBINED
rxx=.946 Rel. estimate based on Gr. 8/9 norms (KR-20)
ryy=.713 Rel. estimate corrected for attenuation

$$r_{WOO} = \frac{r_{xy}}{\sqrt{r_{xx} \cdot r_{yy}}}$$

$$= \frac{.703}{\sqrt{.946 \times .713}}$$

$$= .856$$

TABLE 6

PEARSON CORRELATION COEFFICIENTS

	TOT	ESSFOUR
TOTAL OBJECTIVE	1.0000 (0) S=0.001	0.7204 (567) S=0.001
ESSFOUR* TOTAL WARMAN SAMPLE	0.7204 (567) S=0.001	1.0000 (0) S=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

TABLE 7

PREDICTION FROM THE OBJECTIVE TEST SUBSCORES TO THE TOTAL WRITING SAMPLE

* MULTIPLE REGRESSION * * * * * * * * * * * * * VARIABLE LIST 1
REGRESSION LIST 3

DEPENDENT VARIABLE.. ESSFOUR = TOTAL WRITING SAMPLE

SUMMARY TABLE

VARIABLE = OBJECTIVE TEST SUBSCORES	MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
LOGIC/EVAL.	0.63016	0.39710	0.39710	0.63016	0.1696373	0.25646
SPELLING	0.70373	0.49524	0.09814	0.61852	0.3934731	0.27962
PUNCTUATION	0.72749	0.52924	0.03400	0.60838	0.2774635	0.22801
FORMS	0.73021	0.53321	0.00397	0.42795	0.2503260	0.07162
USAGE	0.73132	0.53483	0.00162	0.53321	0.78469370-01	0.05663
(CONSTANT)					1.429109	

TABLE 8

PREDICTION FROM THE OBJECTIVE TEST SUBSCORES TO THE TWO HOLISTIC SAMPLES COMBINED

* MULTIPLE REGRESSION * * * * * * * * * * * * * VARIABLE LIST 1
REGRESSION LIST 6

DEPENDENT VARIABLE.. ESSTOT = TWO HOLISTIC SAMPLES COMBINED

SUMMARY TABLE

VARIABLE • OBJECTIVE TEST SUBSCORES	MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
LOGIC/EVALUATION	0.61667	0.38028	0.38028	0.61667	0.1436110	0.25786
SPELLING	0.69413	0.48181	0.10153	0.61516	0.3547481	0.29941
PUNCTUATION	0.71300	0.50837	0.02656	0.58552	0.2103622	0.20532
USAGE	0.71461	0.51067	0.00230	0.52649	0.75795390-01	0.06497
FORMS	0.71521	0.51152	0.00085	0.40303	0.1014779	0.03448
(CONSTANT)					-0.3467803	

TABLE 9

PREDICTION FROM EACH WRITING SAMPLE TO THE TOTAL OBJECTIVE TEST

* MULTIPLE REGRESSION * * * * * * * * * * * *

VARIABLE LIST 1
REGRESSION LIST 2

DEPENDENT VARIABLE.. TOTAL OBJECTIVE TEST

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
ESSAY	0.62216	0.38708	0.38708	0.62216	2.575421	0.36785
AUTCONTENT	0.70353	0.49496	0.10787	0.61811	2.490849	0.35772
APPLICATION FORM	0.71763	0.51499	0.02003	0.28081	3.832834	0.13486
AUTFORMAT	0.72647	0.52776	0.01277	0.33469	1.398790	0.11926
(CONSTANT)					26.12930	